Missouri Department of Natural Resources

Total Maximum Daily Load Information Sheet

Mound Branch

Water Body Segment at a Glance:

County: Bates
Nearby Cities: Butler
Length of impaired segment: 10.0 miles
Length of impairment within segment: 1.0 mile
Pollutant: Low Dissolved Oxygen
Sources: Butler Wastewater Treatment Plant and unknown
Water Body ID: 1300


State map showing location of watershed

Scheduled for TMDL Development: TMDL approved by EPA 2010

Description of the Problem

Designated Beneficial uses of Mound Branch

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life
- Protection of Human Health (Fish Consumption)
- Whole Body Contact Recreation

Use that is impaired

- Protection of Warm Water Aquatic Life

Standards that apply

- In the Missouri Water Quality Standards, found in 10 CSR 20-7.031 Table A, the criterion for dissolved oxygen, or DO, in streams is a minimum of 5.0 mg/L (milligrams per liter or parts per million).

  Note: Mound Branch was formerly listed for biochemical oxygen demand, or BOD, and ammonia. High BOD is still a problem. However, since BOD causes the DO in the stream to decrease and the State has a water quality criterion for DO, the Department changed the pollutant to DO Also, since the 1998 listing, data show that Mound Branch is meeting Water Quality Standards for ammonia, so ammonia was removed as a pollutant.

Background information and water quality data

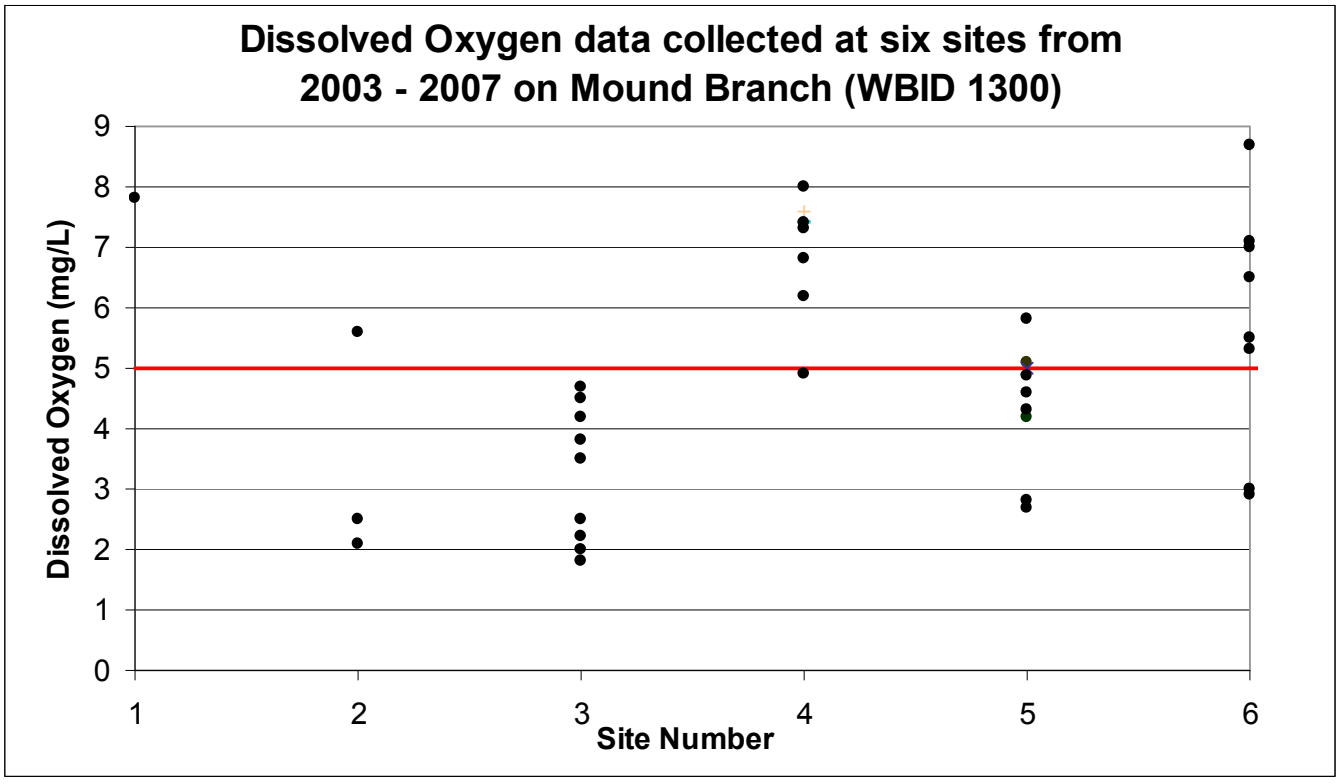
Mound Branch historically has had depressed levels of dissolved oxygen downstream from the Butler Wastewater Treatment Plant. Most aquatic organisms require high levels of oxygen to

survive, but wastewater high in high biochemical oxygen demand reduces the amount of dissolved oxygen in the stream's water.

Like all wastewater treatment plants in Missouri, the Butler plant must meet the terms of a discharge permit issued by Missouri Department of Natural Resources. This permit requires the treatment plant to meet discharge limits that are protective of instream water quality standards. The Butler plant underwent an upgrade that was completed in March 2003. Later in 2003 and again in 2004, water quality studies of Mound Branch showed good wastewater treatment by the Butler plant but unacceptable water quality conditions in Mound Branch itself. The studies also revealed that there are low dissolved oxygen problems upstream of the treatment plant and unrelated to it. Although additional water quality sampling was conducted in May and August of 2008, these data were not used to set the targets for Mound Branch. 2008 was a very wet year, so the data were not considered to be representative of the critical (low flow) conditions necessary for TMDL targets. The TMDL sets targets for biochemical oxygen demand, or BOD, and nutrients, which will be established to achieve a minimum level of dissolved oxygen of 5.0 mg/L in the stream. The TMDL was approved by the U.S. Environmental Protection Agency May 26, 2010.

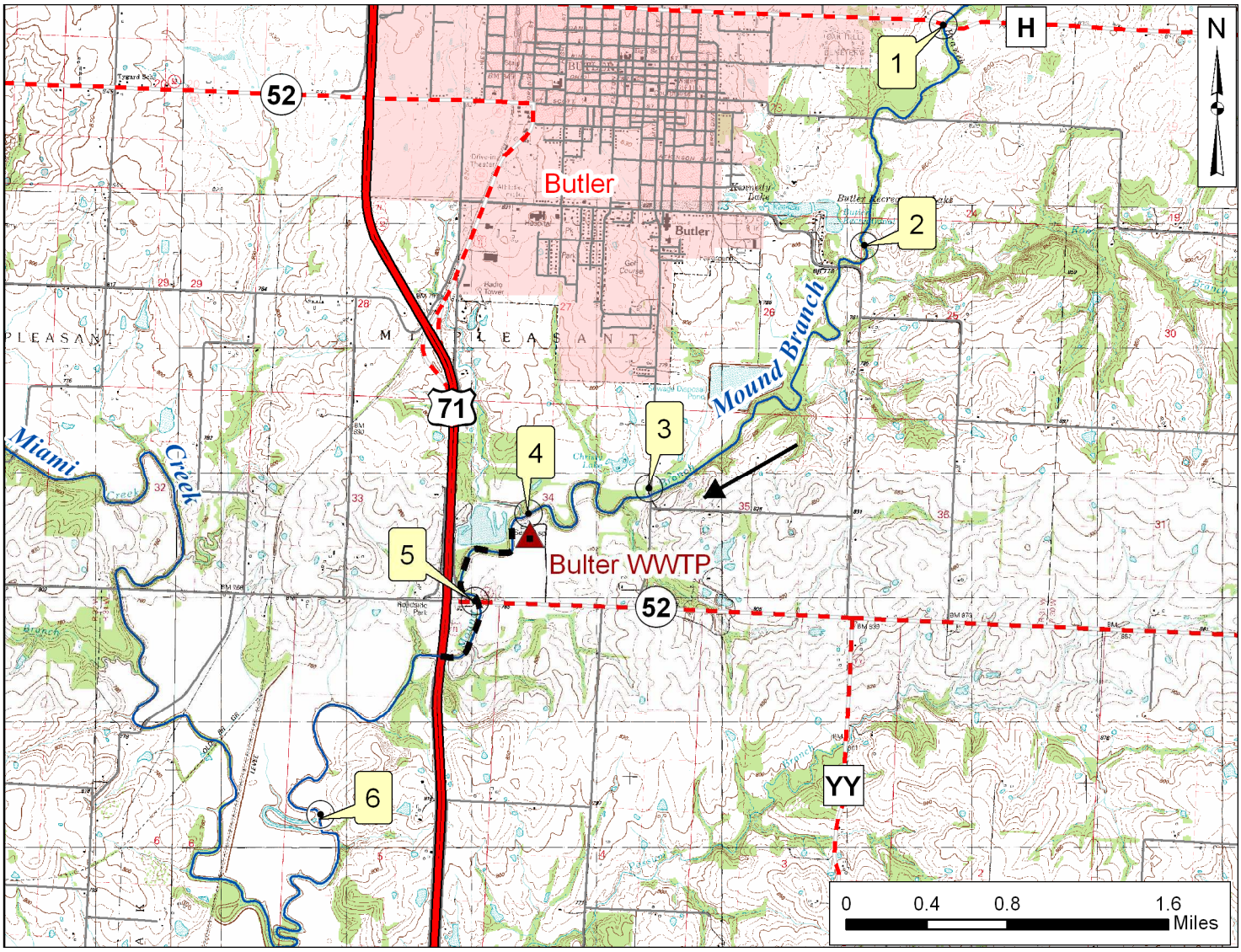
To address the dissolved oxygen deficiency upstream of the Butler plant, presumably caused by nonpoint source storm water runoff, the Marais des Cygnes, Marmaton and Little Osage Rivers Watershed Management Action Plan will be implemented (See Section 9 in the TMDL).

The graph below shows the dissolved oxygen results from sampling conducted from 2003-2007 at six sites. A map showing the sampling sites may be found on the next page.



Note: The bold line is the dissolved oxygen criterion of 5.0 mg/L.

Map of Mound Branch, Bates County, Missouri, Showing the Impairment within the Segment and the Sampling Sites



Impaired Segment Direction of flow

Site Index
1 = Hwy H
2 = 1300/6.91
3 = 1300/4.8; 1.2 miles above the WWTP* (Main St bridge)
4 = 1300/3.6; WWTP Outfall
5 = 1300/3.0; Hwy 52
7 = 1300/1.1; 2.5 miles below the WWTP
Site = WBID/miles above mouth
*WWTP = Wastewater Treatment Plant

Contact information is on the next page.

For more information call or write:
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